



## New chart review data validate administrative data–based indicator for guideline-recommended treatment of locally advanced non-small-cell lung cancer and shed light on reasons for non-referral and non-treatment

*J. Klein–Geltink* MHS<sub>c</sub>,\* *T. Forte* MS<sub>c</sub>,\* *R. Rahal* MBA,\*  
*G. Darling* MD,<sup>†</sup> *W. Cheung* MD,<sup>‡</sup> *R. Alvi* MS<sub>c</sub>,<sup>§</sup> *G. Noonan* CTR,<sup>||</sup>  
*C. Russell* CHIM,<sup>#</sup> *K. Vriends* BHA CHIM,\*\* *J. Niu* MS<sub>c</sub>,\*  
*G. Lockwood* MMath,\*<sup>††</sup> and *H. Bryant* MD PhD\*<sup>‡‡</sup>

### INTRODUCTION

The 2012 *Cancer System Performance Report* is the 4th annual report on the Canadian cancer control system produced by the System Performance initiative at the Canadian Partnership Against Cancer, in collaboration with its provincial and national partners. The 2012 report presents, for 4 provinces, the percentage of all resected stage II and IIIA non-small-cell lung cancer (NSCLC) patients receiving adjuvant chemotherapy consistent with treatment guidelines from the National Comprehensive Cancer Network<sup>1</sup> and the results of a chart review undertaken to validate the indicator results and to examine reasons for non-concordant treatment.

### METHODS

In 2011, a retrospective chart review was undertaken with these two objectives in mind:

- Validate the adjuvant chemotherapy guideline concordance indicator results (derived from provincial administrative data) by comparing them with results from the chart review
- Identify reasons for non-concordant treatment based on documentation in the medical charts

The retrospective chart review included patients who were diagnosed with stage II or IIIA NSCLC in 2008 and who underwent surgical resection of their primary tumour within 1 year. For the study sample, 4 provinces (Alberta, Saskatchewan, Manitoba, and Prince Edward Island) provided the Partnership with a list of study identifiers for all patients fulfilling the foregoing criteria. Sample size calculations based on a precision of  $\pm 5\%$  at the 95% confidence interval dictated the number of patients who were randomly selected from each provincial list. A total of 112 patients were included in the study. In each of the provinces, patient information (age category, sex, diagnosis),

referral status, treatment status, and reasons for non-referral and non-treatment (where applicable) were entered into a standard data abstraction tool by two trained abstractors and were reviewed by a radiation oncologist when clarification was required. Consistency checks on each abstracted data element were performed for each pair of abstractors at the beginning of data collection.

### RESULTS

#### Findings from the Chart Review Validate Indicator Results Obtained from Administrative Data

Information on the percentage of patients diagnosed with stage II or IIIA NSCLC and receiving postoperative chemotherapy was available from the provincial cancer registry and treatment databases held within the provincial cancer agencies or programs (that is, administrative data)<sup>a</sup> and from a medical chart review for Alberta, Saskatchewan, and Manitoba. The two data sources from Alberta ( $n = 51$ ) and Manitoba ( $n = 34$ ) showed consistency in the percentage of patients treated with postoperative systemic therapy (Figure 1). Those results suggest that provincial administrative datasets can be used to calculate reliable indicators of treatment practice patterns. The inconsistency between the two data sources from Saskatchewan ( $n = 25$ ) prompted an investigation into the reasons for the discordant results and helped to identify a data quality issue in the treatment database. Only chart review data were available from Prince Edward Island.

<sup>a</sup> To identify patients, we used the codes C34.0 to C34.9 from the *International Classification of Diseases for Oncology*, 3rd edition, and a stage at diagnosis of II or IIIA as defined by the American Joint Committee on Cancer. Cases with lymphoma codes M-95 to M-98 and histology codes 8002, 8041, 8043, 8044, 8045, 8073, and 8803 were excluded. Patients less than 18 years of age were also excluded.

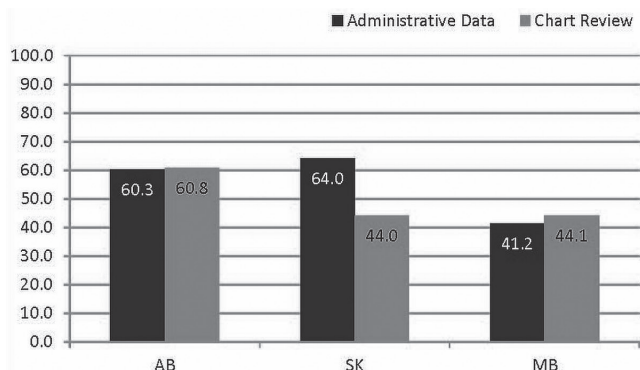


FIGURE 1 Comparison of chart review and administrative data: percentage of patients diagnosed with stage II or IIIA non-small-cell lung cancer receiving postoperative chemotherapy within 1 year of diagnosis, 2008.

### Reasons for Non-referral to an Oncologist and Non-treatment Among Patients Referred for Chemotherapy

Results from the chart review showed that, among the 112 patients diagnosed and resected for locally advanced NSCLC, 47.3% did not receive postoperative chemotherapy (14.3% were not referred for chemotherapy; and 33.0% were referred for chemotherapy, but not treated). Among the patients not referred to an oncologist, the reasons most commonly documented in the medical chart were comorbidities (25%), patient death (13%), patient choice (13%), and patient age (12%, Figure 2). For almost one third of non-referred cases, no clear reason was documented. Among patients referred by the surgeon to an oncologist, 46% were documented as having declined treatment. Other reasons for non-treatment included comorbidities (24%) and postoperative complications (19%, Figure 3).

### FUTURE DIRECTIONS

The findings reported here are based on a small number of cases, and not all provinces participated in the chart review. However, this work represents a comprehensive effort, involving several provincial jurisdictions, to assess systemic therapy for cancer. Working with provincial cancer programs and clinician groups, findings from the chart review can be used to inform both cancer agency data quality improvements and practice improvement strategies. For instance, for cases not referred or not treated because of patient choice, an exploration of how the patients are presented with the information needed to inform decision-making could be undertaken. It is possible either that the providers need to give patients more information, or that the patients need to be made more aware of their treatment options and how those options translate into improved survival. The results of the chart review are also being used

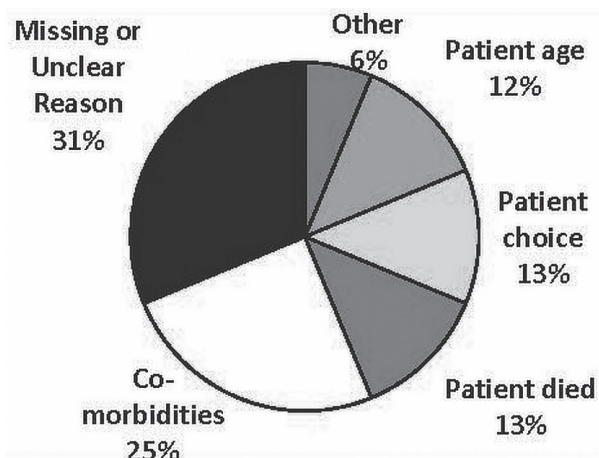


FIGURE 2 Reasons that stage II and IIIA non-small-cell lung cancer patients diagnosed in 2008 and resected within 1 year of diagnosis were not referred to an oncologist for chemotherapy.

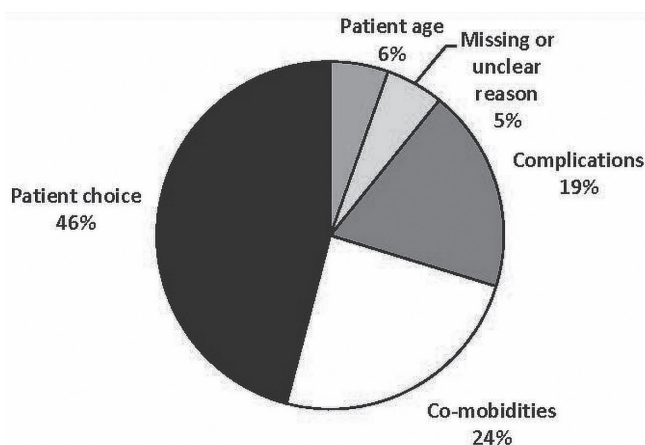


FIGURE 3 Reasons that stage II and IIIA non-small-cell lung cancer patients diagnosed in 2008, resected within 1 year of diagnosis, and referred by a surgeon to an oncologist for chemotherapy were not treated.

to help set performance targets for treatment rates by identifying whether the level of concordance with evidence-based guidelines is appropriate, taking into account factors that are beyond the clinician’s control.

### THE CANCER SYSTEM PERFORMANCE COLLABORATION

The *Cancer System Performance Report* is published by the Canadian Partnership Against Cancer and made possible through the dedicated efforts of the Steering Committee and Technical Working Group for System Performance, comprising representatives from all 10 provinces. The authors thank the project teams in Alberta, Saskatchewan, Manitoba, and Prince Edward Island.

The full report can be viewed at <http://www.cancerview.ca/systemperformancereport>.

Downloadable slides of figures in this communication and in the *System Performance Report* can be found at <http://www.cancerview.ca/downloadables/slides>.

### CONFLICT OF INTEREST DISCLOSURES

The authors have no financial conflicts of interest to declare.

### REFERENCES

1. National Comprehensive Cancer Network (NCCN). *Non-Small Cell Lung Cancer*. NCCN Clinical Practice Guidelines in Oncology. Ver. 3.2011. Fort Washington, PA: NCCN; 2011.

**Correspondence to:** Tonia Forte, Canadian Partnership Against Cancer, 300–1 University Avenue, Toronto, Ontario M5J 2P1.

**E-mail:** [tonia.forte@partnershipagainstcancer.ca](mailto:tonia.forte@partnershipagainstcancer.ca)

\* Canadian Partnership Against Cancer, Toronto, ON.

† Toronto General Hospital, University Health Network, Toronto, ON.

‡ British Columbia Cancer Agency, Vancouver, BC.

§ Saskatchewan Cancer Agency, Saskatoon, SK.

|| CancerCare Manitoba, Winnipeg, MB.

# Alberta Health Services, Edmonton, AB.

\*\* PEI Cancer Treatment Centre, Charlottetown, PE.

†† Dalla Lana School of Public Health, University of Toronto, Toronto, ON.

‡‡ Departments of Community Health Sciences and Oncology, University of Calgary, Calgary, AB.